Student Discovery Sheet

Grades 9 – 12

Locate the exhibits described below, and explore the images, artifacts and specimens. Then answer the following questions, drawing upon information you glean from the exhibits, your own knowledge, or research upon return to your classroom. Please do not lean on or write on the exhibit cases. Borrow a writing board from the Information Desk and use pencils only. Have fun and enjoy your museum experience!

The Collection That Teaches:
Civil War Collections

The State of Civil War Medicine:
Examine the photos, gunshot wounds, and artifacts in this exhibit. Describe how sanitary conditions changed by the end of the war. List some of the sanitary conditions that existed during the war. What pain-killers were available? What anesthetics were available?

Trauma and Surgery:
Despite the challenging conditions that existed during the war, surgical procedures were sometimes the only way to save a soldier's life. Based on information in these cases, describe some surgical procedures used during the war. Would they be used today? What was the purpose of the Chisholm Inhaler? What types of wounds were considered nearly always fatal?

Disease and Hygiene:
A silent killer lurked in all the camps and hospitals. The discovery of diseases and the germ theory were years away. Name some of the diseases that killed many Civil War soldiers. Did more men die of disease or battle wounds? Explain the conditions of the time to support your answer.

Evacuation and Hospitalization:
The Civil War is credited with making significant changes in evacuation and hospitalization of the injured. Describe some of the changes introduced in the processes of evacuation and hospitalization? Which are still in use today? List some of the methods of evacuation displayed in the cases.

Lincoln's Last Hours:
X-ray, a technology used to locate a bullet embedded in the body today, was not discovered until 1895. What instrument did Dr. Barnes use to locate the bullet lodged in Lincoln's brain? What challenges would using this instrument cause for both the doctor and the patient?

Visualizing the Human Form:
Many of the artifacts in these cases look at different methods of understanding the human body. List three methods of visualizing the human form and what they can tell us about the body.

Identifying Human Remains:
Name three bones that can be used by forensic anthropologists to create a biological profile from skeletal remains. Name the characteristics that can be described through examination of these bones.

Pathology

The Case of Peter Cluckey:
Examine the seated skeleton. What characteristics of the bones (the white ones) do you see that support the original diagnosis of arthritis?

Disease Categories:
Diseases and disorders can be divided into a variety of categories. Please match the four disease categories with the corresponding descriptions.

____ Metabolic Disorders	(A) A disease caused by the invasion of pathogenic biological agents such as viruses, bacteria, parasites or fungi
____ Congenital Anomalies	(B) A disease in which abnormal cells divide without control and invade other tissue.
____ Infectious Disease	(C) Abnormal conditions present at birth
____Cancer (Malignant Neoplasms)	(D) A disease or disorder caused by disruption of the biochemical pathways that function to convert food to energy.

Biomedical Engineering:
Answer True or False for the following statements. Correct false statements.

____ Biomedical engineering does not include artificial organs.

____ Biomedical engineers manipulate and use electrical, mechanical and chemical forces to design unique technologies to meet clinical needs.

____ Biomedical engineers study human physiology and pathology to design treatments for patients.

____ Heart valves are not an example of biomedical engineering.

The Human Body: Anatomy and Pathology
The Healthy Human Body

Skeleton
A Beauchene preparation disarticulates the structure and presents the structures in their spatial relationship to one another. There are two specimens on display that were prepared using the Beauchene method. Explain how this preparation is helpful in understanding the skeletal system of the body.

Plastination
Answer True or False to the following statements

____Plastination is a method used to preserve organs.

____Plastination involves embedding organs with formalin or alcohol.

____ Plastination was developed by Gunther von Hagens in the late 1970s.

The Fragile Organ
Describe the functions of the following parts of the brain.

Frontal Lobe:

Temporal Lobe:

Occipital Lobe:

Parietal Lobe:

Cerebrum:

Cerebellum:

Motor Cortex:

Sensory Cortex:

Hippocampus:

Amygdala:
Traumatic Brain Injury

Fill in the blanks.

Traumatic Brain Injury or TBI occurs when the brain is damaged by a_____.

_____ is when two injuries to the brain occur from a single blow.

The most common type of closed head injury is a _____ which is also considered a _____.

A small tearing effect as a result of a closed head injury is called a _____.

Axons are _____ of the nerve cell that _____ messages.

A type of _____ to relieve cranial pressure is called trephination.

List and describe three types of rehabilitation used to treat TBI.
1.

2.

3.

Military Medicine: Challenges and Innovations

Advances and innovation in medicine can be seen in a variety of forms. The SMEED, Special Medical Emergency Evacuation Device, is one of these innovations. Explain the importance and use of the SMEED in evacuation of wounded service members.

Match the following topics with their corresponding example of innovation.

____Protection	A. Penicillin Culture Vessel
____Repairing	B. Moulage Kit
____Rehabilitation	C. Personal Identification Carrier
____Research	D. Detmold Knife Utensil
____Organization	E. Mickey Mouse or Bunny Boots

Innovations can be simple changes to a standard misconception or basic design. Describe one object seen in this gallery that represents this form of innovation.

Major Walter Reed led a team that was responsible for identifying the vector that transmitted Yellow Fever. They accomplished this through human testing. What document was used for the first time to ensure that patients' rights were protected?